

WHAT IS CLAIMED IS:

1. A decoding apparatus for decoding a coded stream, comprising:

input means for inputting a speeded-up coded stream;  
a plurality of decoding means for decoding said speeded-up coded stream;

decoding control means for controlling said plurality of decoding means such that said plurality of decoding means operate in parallel; and

output control means for outputting, at an arbitrary playback speed, a picture corresponding to said speeded-up coded stream decoded by said plurality of decoding means.

2. A decoding apparatus according to Claim 1, wherein said speeded-up coded stream is an MPEG-2 video bit stream having a bit rate increased by a predetermined factor.

3. A decoding apparatus according to Claim 2, wherein said output control means outputs a picture corresponding to said MPEG-2 video bit stream having the bit rate increased by the predetermined factor, at a playback speed increased by a factor within the range from zero to a predetermined value.

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4. A decoding apparatus according to Claim 1, wherein said decoding means outputs a signal indicating completion of decoding to said decoding control means, and said decoding control means controls said decoding means which has output said signal indicating the completion of decoding such that said decoding means decodes another coded stream.

5. A decoding apparatus according to Claim 1, further comprising:

first buffer means for buffering said coded stream;

reading means for reading from said coded stream a start code indicating the start of a predetermined unit of information included in said coded stream and further reading position information indicating a location in said buffer means at which said start code is stored;

second buffering means for buffering said start code and said position information read by said reading means; and

buffering control means for controlling buffering of said coded stream by said first buffering means and buffering of said start code and said position information by said second buffering means.

6. A decoding apparatus according to Claim 1, further

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comprising:

selection means for selecting a particular one of a plurality of picture data decoded and output by said plurality of decoding means; and

compensation means which receives the picture data selected by said selection means and performs motion compensation, as required, upon the received picture data.

7. A decoding apparatus according to Claim 6, wherein said plurality of decoding means output an end signal indicating completion of decoding to said selection means, said selection means includes storage means for storing a value corresponding to a processing state of each of said plurality of decoding means such that:

when values stored in said storage means all become equal to a first value, a value stored therein corresponding to decoding means outputting said end signal indicating completion of decoding is changed from said first value to a second value,

one of picture data decoded by said first decoding means corresponding to the second value stored in said storage means is selected, and

the values, stored in said storage means, corresponding to said decoding means which has decoded said selected picture data is changed to said first value.

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8. A decoding apparatus according to Claim 6, further comprising:

storage means for storing said picture data selected by said selection means or said picture data subjected to motion compensation performed by said motion compensation means; and

storage control means for controlling the storage, in said storage means, of said picture data selected by said selection means or said picture data subjected to motion compensation performed by said motion compensation means.

9. A decoding apparatus according to Claim 8, wherein said storage means stores a luminance component and a color difference component of said picture data separately from each other.

10. A decoding method for a decoding apparatus for decoding a coded stream, comprising:

an inputting step of inputting a speeded-up coded stream;

a plurality of decoding steps of decoding the speeded-up coded stream;

a decoding control step of controlling said plurality of decoding steps such that said plurality of decoding steps

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are performed in parallel; and

an output control step of outputting, at an arbitrary playback speed, a picture corresponding to said speeded-up coded stream decoded in said plurality of decoding steps.

11. A storage medium on which a computer-readable program for decoding a coded stream is stored, said program comprising:

an inputting step of inputting a speeded-up coded stream;

a plurality of decoding steps of decoding the speeded-up coded stream;

a decoding control step of controlling said plurality of decoding steps such that said plurality of decoding steps are performed in parallel; and

an output control step of outputting, at an arbitrary playback speed, a picture corresponding to said speeded-up coded stream decoded in said plurality of decoding steps.

12. A decoding apparatus including a plurality of slice decoders for decoding a coded stream, comprising:

input means for inputting a speeded-up coded stream;

slice decoder control means for controlling said plurality of slice decoders such that said plurality of slice decoders operate in parallel; and

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output control means for outputting, at an arbitrary playback speed, a picture corresponding to said speeded-up coded stream decoded by said plurality of slice decoders.

13. A decoding method for a decoding apparatus including a plurality of slice decoders for decoding a coded stream, comprising:

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an inputting step of inputting a speeded-up coded
stream:

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a slice decoder control step of controlling said plurality of slice decoders such that said plurality of slice decoders operate in parallel; and

an output control step of outputting, at an arbitrary playback speed, a picture corresponding to said speeded-up coded stream decoded by said plurality of slice decoders.

14. A storage medium on which a decoding program for a decoding apparatus including a plurality of slice decoders for decoding a coded stream is stored in a computer-readable fashion, said program comprising:

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    an inputting step of inputting a speeded-up coded
stream;
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a slice decoder control step of controlling said plurality of slice decoders such that said plurality of slice decoders operate in parallel; and

an output control step of outputting, at an arbitrary playback speed, a picture corresponding to said speeded-up coded stream decoded by said plurality of slice decoders.

15. A decoding apparatus for decoding a coded stream, comprising:

input means for inputting a plurality of coded streams;  
a plurality of decoding means for decoding said plurality of coded streams;

decoding control means for controlling said plurality of decoding means such that said plurality of decoding means operate in parallel; and

output control means for outputting a plurality of pictures corresponding to the plurality of coded streams decoded by said plurality of decoding means.

16. A decoding apparatus according to Claim 15, wherein said coded stream is an MPEG-2 video bit stream.

17. A decoding apparatus according to Claim 15, wherein said decoding means outputs a signal indicating completion of decoding to said decoding control means, and said decoding control means controls said decoding means which has output said signal indicating the completion of decoding such that said decoding means decodes another

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coded stream.

18. A decoding apparatus according to Claim 15, further comprising:

first buffer means for buffering said coded stream;

reading means for reading from said coded stream a start code indicating the start of a predetermined unit of information included in said coded stream and further reading position information indicating a location in said buffer means at which said start code is stored;

second buffering means for buffering said start code and said position information read by said reading means; and

buffering control means for controlling buffering of said coded stream by said first buffering means and buffering of said start code and said position information by said second buffering means.

19. A decoding apparatus according to Claim 15, further comprising:

selection means for selecting a particular one of a plurality of picture data decoded and output by said plurality of decoding means; and

compensation means which receives the picture data selected by said selection means and performs motion

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compensation, as required, upon the received picture data.

20. A decoding apparatus according to Claim 19, wherein said plurality of decoding means output an end signal indicating completion of decoding to said selection means, said selection means includes storage means for storing a value corresponding to a processing state of each of said plurality of decoding means such that:

when values stored in said storage means all become equal to a first value, a value stored therein corresponding to decoding means outputting said end signal indicating completion of decoding is changed from said first value to a second value,

one of picture data decoded by said first decoding means corresponding to the second value stored in said storage means is selected, and

the values, stored in said storage means, corresponding to said decoding means which has decoded said selected picture data is changed to said first value.

21. A decoding apparatus according to Claim 19, further comprising:

storage means for storing said picture data selected by said selection means or said picture data subjected to motion compensation performed by said motion compensation

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means; and

storage control means for controlling the storage, in said storage means, of said picture data selected by said selection means or said picture data subjected to motion compensation performed by said motion compensation means.

22. A decoding apparatus according to Claim 21, wherein said storage means stores a luminance component and a color difference component of said picture data separately from each other.

23. A decoding apparatus according to Claim 15, further comprising:

acceptance means for accepting a multiplexed stream on which said plurality of coded streams are multiplexed; and

supply means for separating said multiplexed stream into the plurality of coded streams and supplying said plurality of coded streams to said input means.

24. A decoding method for a decoding apparatus for decoding a coded stream, comprising:

an inputting step of inputting a plurality of coded streams;

a plurality of decoding steps of decoding said plurality of coded streams;

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a decoding control step of controlling said plurality of decoding steps such that said plurality of decoding steps are performed in parallel; and

an output control step of outputting a plurality of pictures corresponding to said plurality of coded streams decoded in said plurality of decoding steps.

25. A storage medium on which a computer-readable program for decoding a coded stream is stored, said program comprising:

an inputting step of inputting a plurality of coded streams;

a plurality of decoding steps of decoding said plurality of coded streams;

a decoding control step of controlling said plurality of decoding steps such that said plurality of decoding steps are performed in parallel; and

an output control step of outputting a plurality of pictures corresponding to said plurality of coded streams decoded in said plurality of decoding steps.

26. A decoding apparatus including a plurality of slice decoders for decoding a coded stream, comprising:

inputting means for inputting a plurality of coded streams;

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slice decoder control means for controlling said plurality of slice decoders such that said plurality of slice decoders operate in parallel; and

output control means for outputting a plurality of pictures corresponding to said plurality of coded streams decoded by said plurality of slice decoders.

27. A decoding method for a decoding apparatus including a plurality of slice decoders for decoding a coded stream, comprising:

an inputting step of inputting a plurality of coded streams;

a slice decoder control step of controlling said plurality of slice decoders such that said plurality of slice decoders operate in parallel; and

an output control step of outputting a plurality of pictures corresponding to said plurality of coded streams decoded by said plurality of slice decoders.

28. A storage medium on which a decoding program for a decoding apparatus including a plurality of slice decoders for decoding a coded stream is stored in a computer-readable fashion, said program comprising:

an inputting step of inputting a plurality of coded streams;

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a slice decoder control step of controlling said plurality of slice decoders such that said plurality of slice decoders operate in parallel; and

an output control step of outputting a plurality of pictures corresponding to said plurality of coded streams decoded by said plurality of slice decoders.

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